

## Further additions to the scorpion fauna of the Guayana region of South America<sup>1</sup>

Wilson R. LOURENÇO

Département de Systématique et Evolution, USM 0602, Section Arthropodes (Arachnologie), Muséum national d'Histoire naturelle, CP 053, 61 rue Buffon 75005 Paris, France. E-mail: arachne@mnhn.fr

**Further additions to the scorpion fauna of the Guayana region of South America.** - This paper presents the results of a study of a new collection of South American scorpions now deposited in the Geneva Museum. The collection comprises two families, four genera and nine species. Among them is one new species, *Broteochactas danielae* sp. n. (Chactidae), described here from Guyana and Brazil.

**Keywords:** Scorpiones - *Broteochactas* - new species - Guyana.

### INTRODUCTION

Contributions to our knowledge of the scorpion fauna of the Neotropical region and to material deposited in the Natural History Museum of Geneva have been presented in previous studies (Lourenço, 1997, 2002a). As already mentioned in numerous publications, South America is probably one of the regions of the world best studied for its fauna of scorpions. Studies began in the first half of the 19<sup>th</sup> century and were for the first time compiled in a monograph by Mello-Leitão (1945). Since then other contributions have been published, notably by Maury (1979), González-Sponga (1996), Lourenço, (2002b,c) and Ojanguren Affilastro (2005). On account of the diversity and richness of the scorpion fauna of South America, the discovery and description of new species and even of new genera is by no means unusual (Lourenço, 2003, 2006; Lourenço *et al.*, 2004).

The present contribution, once again, is the result of a study of a more or less heterogeneous collection of scorpions now deposited in the Natural History Museum of Geneva. In addition to the description of a new species in the genus *Broteochactas* Pocock, a list of all the species studied here is given. This list is presented in an alphabetical order of families, genera and species. Species from the following countries have been included: Brazil, Guyana, Suriname and Venezuela. Most of the material examined was collected in the Guayana region, a floristic lowland province that has been delineated botanically (see Mori, 1991).

<sup>1</sup>Study supported by the “Département municipal des affaires culturelles de la Ville de Genève”.  
Manuscript accepted 25.05.2007

## METHODS

Illustrations and measurements were made using a Wild M5 stereo-microscope with a drawing tube and an ocular micrometer. Measurements follow those of Stahnke (1970) and are given in mm. Trichobothrial notations are those developed by Vachon (1974) and the morphological terminology mostly follows that of Vachon (1952) and Hjelle (1990).

## TAXONOMY

Family Buthidae C.L. Koch, 1837

Genus *Tityus* C.L. Koch, 1836

Subgenus *Atreus* Gervais, 1843

*Tityus cambridgei* Pocock, 1897

MATERIAL: Suriname, between Moengo and Albina, 5-15/III/1987 (collected by local village people and received by J.-C. Lacroix), 2 males, 2 females.

DISTRIBUTION: Eastern Amazonia and Guayana, Brazil, French Guiana and Suriname.

*Tityus discrepans* (Karsch, 1879)

MATERIAL: Venezuela, Caracas IV/2005 (A. Borges leg.), 2 males, 2 females.

DISTRIBUTION: Trinidad, Venezuela.

*Tityus falconensis* González-Sponga, 1974

MATERIAL: Venezuela, Estado Falcón, II/2005 (E. Ythier leg.), 1 female.

DISTRIBUTION: Venezuela.

*Tityus magnimanus* Pocock, 1897

MATERIAL: Venezuela, Estado Mérida, X/1977 (P. Augusto leg.), 1 female.

DISTRIBUTION: Venezuela.

Family Chactidae Pocock, 1893

Genus *Broteochactas* Pocock, 1893

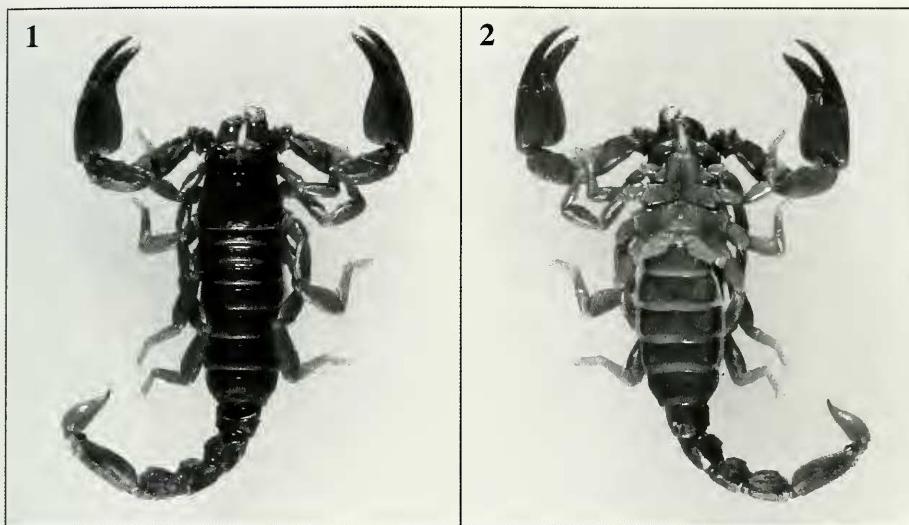
*Broteochactas danielleae* sp. n.

Figs 1-12

MATERIAL: Guyana (on the border with Brazil), between Lethem and Conceição do Mau, 6/IV/1987 (collected by local people and received by J.-C. Lacroix); female holotype. Brazil, State of Pará, on the border with Guyana, X/1965 (F. Castro leg.); female paratype. Type material deposited in the Natural History Museum of Geneva (MHNG).

ETYMOLOGY: The species name is a patronym in honor of Dr Danielle Decrouez, director of the Natural History Museum of Geneva.

DIAGNOSIS: Small scorpions, 23 to 24 mm in total length. Coloration reddish yellow to reddish brown. Body and appendages weakly granulated or smooth, with minute punctuation. Pectines with 7-8 teeth in females. Trichobothrial pattern of type C neobothriotaxic ‘majorante’.



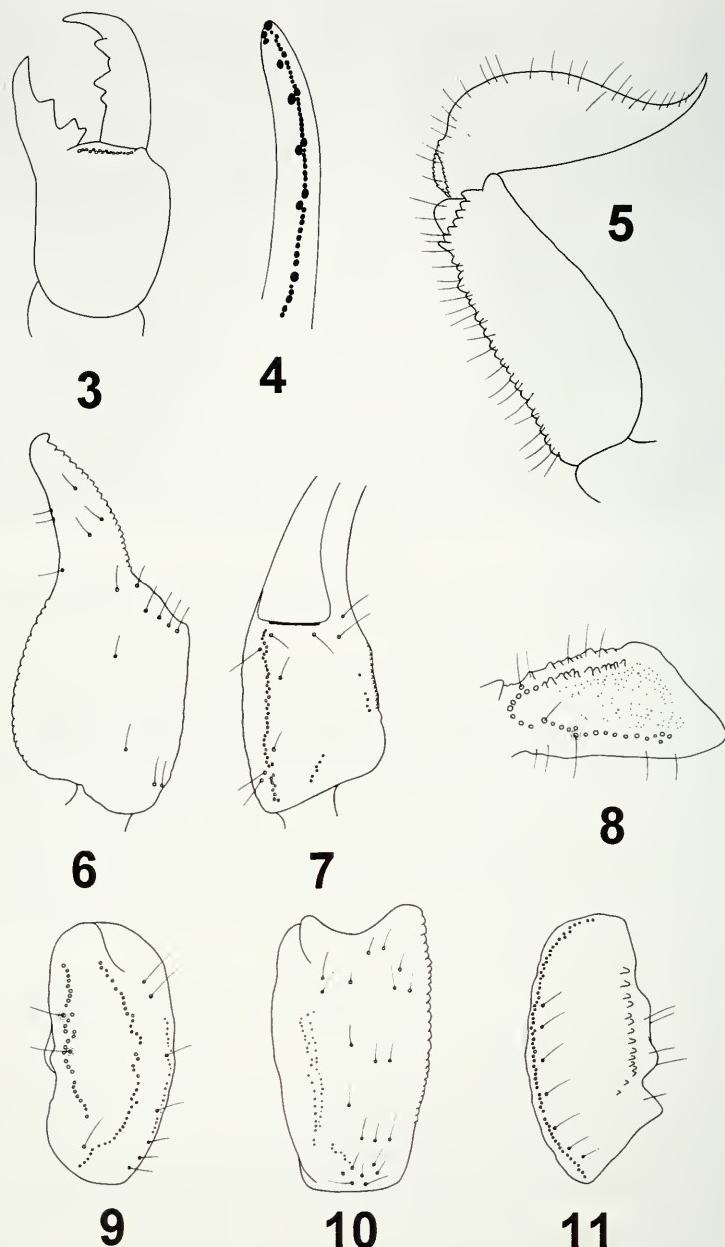
FIGS 1-2

*Broteochactas danielleae* sp. n. Female holotype, dorsal and ventral aspects.

*Broteochactas danielleae* sp. n. can be included in the 'Broteochactas' species group (Lourenço, 2002b). The new species can be distinguished from others in the genus *Broteochactas* and in particular from *Broteochactas santanai* Gonzalez-Sponga, 1978 which occurs in the nearby region of Estado Bolívar in Venezuela, and from *Broteochactas delicatus* (Karsch, 1879) which is distributed throughout the Guayana region, by the following features: (i) carapace, pedipalps and metasomal tegument exclusively punctuated (ii) overall size smaller (iii) larger number of pectinal teeth. Moreover, the new species is found in a savannah-like open vegetation habitat, the 'Amazon terra firme savannahs' (Murça Pires & Prance, 1985), whereas the other two species are found in tropical forest.

**DESCRIPTION:** (based on female holotype and paratype). Coloration. Basically reddish yellow to reddish brown (Figs 1-2). Prosoma: carapace reddish brown. Tergites reddish brown, slightly paler than carapace, with two longitudinal yellowish strips. Metasomal segments reddish yellow, with darker zones over carinae; vesicle yellowish. Chelicerae reddish yellow, with diffuse variegated blackish spots; fingers uniformly deep reddish yellow. Pedipalps reddish; femur darker than patella and chela. Legs reddish yellow to yellow. Venter and sternites yellowish; pectines and genital operculum paler than sternites.

**Morphology:** Carapace lustrous and acarinate, with dense minute punctation; furrows shallow. Sternum pentagonal, wider than long. Tergites acarinate, with only minute granulations, almost smooth and shiny. Pectinal teeth count 7-7 (7-8), fulcra absent (Fig 2). Sternites smooth and shiny, VII acarinate. Metasomal segments IV and V longer than wide; metasomal tegument almost lustrous with only a few small granulations and a few punctuations; segment V with small spinoid granulations ventrally



FIGS 3-11

*Broteochactas danielae* sp. n. Female holotype. (3) Chelicera, dorsal aspect. (4) Disposition of granules on the dentate margins of the pedipalpal chela movable finger. (5) Metasomal segment V and telson, lateral aspect. (6-11) Trichobothrial pattern. Chela, dorso-external and ventral aspects (6-7); femur, dorsal aspect (8); patella, external and ventral aspects (9-11).

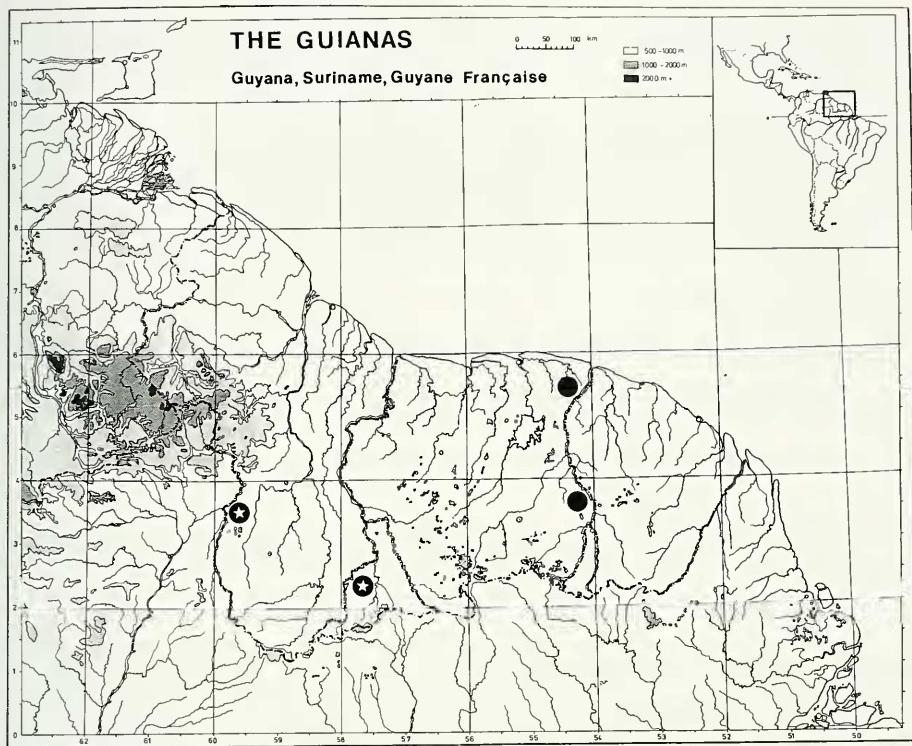


FIG. 12

Map of the Guianas region, comprising the Guayana floristic province. Are indicated the localities of *Broteochactas danielae* sp. n., in Guyana and Brazil (black circle with white star), and the new localities in Suriname for *Tityus cambridgei*, *Broteochactas delicatus*, *Brotheas gervaisii*, *Brotheas granulatus* and *Hadrurochactas schaumii* (black circle).

(Fig 5). Carinae on segments I-V moderately developed; ventral carina absent from segments I and II, weakly marked on segments III-IV. Pedipalps: femur with dorsal internal, dorsal external and ventral internal carinae moderately marked; ventral external carina vestigial; dorsal and ventral aspects with minute granulations; internal aspect weakly granular. Patella with minute granulations; dorsal internal, ventral internal, ventral external and external carinae weak; other carinae vestigial. Chela with minute granulations; ventral and dorsal median carina moderately to strongly developed; other carinae weakly marked; internal aspect with a few moderate granules. Dentate margins on movable and fixed fingers with 6 rows of granules (Fig 4). Chelicerae with a dentition typical of the family Chactidae (Vachon, 1963), and with dense setation ventrally and internally (Fig 3). Trichobothriotaxy of type C (Figs 6-11); neobothriotaxic 'majorante' (Vachon, 1974).

*Morphometric values of the female holotype:* Total length excluding the vesicle, 24.1. Carapace: length, 4.2; anterior width, 2.8; posterior width, 4.7. Metasomal segments. I: length, 1.4; width, 2.5; II: length, 1.7; width, 2.1; III: length, 1.7; width,

1.9; IV: length, 2.1; width, 1.8; V: length, 3.8; width, 1.7; depth, 1.5. Vesicle: width, 1.5; depth, 1.1. Pedipalp: femur length, 2.9, width, 1.3; patella length, 3.5, width, 1.5; chela length, 6.8, width, 2.5, depth, 3.0; movable finger length, 3.8.

### ***Broteochactas delicatus* (Karsch, 1879)**

MATERIAL: Suriname, between Moengo and Albina, 5-15/III/1987 (collected by local village people and received by J.-C. Lacroix), 9 males, 3 females.

DISTRIBUTION: Brazil, French Guiana, Guiana, Suriname, Venezuela (?).

Genus *Brotheas* C.L. Koch, 1837

### ***Brotheas gervaisii* Pocock, 1893**

MATERIAL: Suriname, between Moengo and Albina, 5-15/III/1987 (collected by local village people and received by J.-C. Lacroix), 2 males.

DISTRIBUTION: Brazil, French Guiana, Suriname.

### ***Brotheas granulatus* Simon, 1877**

MATERIAL: Suriname, between Moengo and Albina, 5-15/III/1987 (collected by local village people and received by J.-C. Lacroix), 1 male, 3 females.

DISTRIBUTION: Brazil, French Guiana, Suriname.

Genre *Hadrurochactas* Pocock, 1893

### ***Hadrurochactas schaumii* (Karsch, 1880)**

MATERIAL: Suriname, north of Benzendorp, 18/25/III/1987 (collected by local village people and received by J.-C. Lacroix), 2 males, 2 females.

DISTRIBUTION: Brazil, French Guiana, Guiana, Suriname, Venezuela.

## ACKNOWLEDGEMENTS

I am very grateful to Dr Danielle Decrouez, director of the Natural History Museum of Geneva, and to the 'Département municipal des affaires culturelles de la Ville de Genève' for supporting this study the results of which are presented here. I thank Prof. John L. Cloudsley-Thompson (London) and Dr Peter Schwendinger (MHNG), for reviewing the manuscript. Claude Ratton (MHNG) produced the photographs and Florence Marteau (MHNG) arranged them into a plate.

## REFERENCES

- GONZÁLES-SPONGA, M. A. 1996. Guía para identificar escorpiones de Venezuela. *Cuadernos Lagoven, Caracas*, 204 pp.
- HJELLE, J. T. 1990. Anatomy and morphology (pp. 9-63). In: POLIS, G. A. (ed.). *The Biology of Scorpions*. Stanford University Press, Stanford, 587 pp.
- LOURENÇO, W. R. 1997. Additions à la faune de scorpions néotropicaux (Arachnida). *Revue suisse de Zoologie* 104 (3): 587-604.
- LOURENÇO, W. R. 2002a. Nouvelles additions à la faune de scorpions néotropicaux (Arachnida). *Revue suisse de Zoologie* 109 (1): 127-141.
- LOURENÇO, W. R. 2002b. Scorpions of Brazil. *Les Editions de L'IF, Paris*, 320 pp.

- LOURENÇO, W. R. 2002c. Scorpions (pp. 399-438), In: J. ADIS (ed.) *Amazonian Arachnida and Myriapoda*. Pensoft Publishers, Series Faunistica N° 24, Sofia-Moscow, 590 pp.
- LOURENÇO, W. R. 2003. Huminicolous buthoid scorpions: a new genus and species from French Guiana. *Comptes rendus Biologies* 326: 1149-1155.
- LOURENÇO, W. R. 2006. Nouvelle proposition de découpage sous-générique du genre *Tityus* C. L. Koch, 1836 (Scorpiones, Buthidae). *Boletín de la Sociedad Entomológica Aragonesa* 39: 55-67.
- LOURENÇO, W. R., CERQUEIRA BAPTISTA, R. L. & PONCE DE LEAO GIUPPONI, A. 2004. Troglobitic scorpions: a new genus and species from Brazil. *Comptes rendus Biologies* 327: 1151-1156.
- MAURY, E. A. 1979. Apuntes para une zoogeografia de la escorpiofauna argentina. *Acta Zoologica Lilloana* 35: 703-719.
- MELLO LEITÃO, C. 1945. Escorpiões Sul Americanos. *Arquivos do Museu Nacional*, Rio de Janeiro 40: 1-468.
- MORI, S. A. 1991. The Guayana lowland floristic Province. *Comptes rendus des séances de la Société de Biogéographie* 67 (2): 67-75.
- MURÇA PIRES, J. & PRANCE, G. T. 1985. The vegetation types of the Brazilian Amazon (pp. 109-145). In: PRANCE, G. T. & LOVEJOY, T. E. (eds). *Amazonia*. Pergamon Press, Oxford, New York, 442 pp.
- OJANGUREN AFFILASTRO, A. A. 2005. Estudio monográfico de los escorpiones de la República Argentina. *Revista Ibérica de Aracnología* 11: 75-241.
- STAHNKE, H. L. 1970. Scorpion nomenclature and mensuration. *Entomological News* 81: 297-316.
- VACHON, M. 1952. Etudes sur les Scorpions. *Institut Pasteur d'Algérie*, Alger, 482 pp.
- VACHON, M. 1963. De l'utilité, en systématique, d'une nomenclature des dents des chélicères chez les Scorpions. *Bulletin du Muséum national d'Histoire naturelle*, Paris, 2e sér., 35 (2): 161-166.
- VACHON, M. 1974. Etude des caractères utilisés pour classer les familles et les genres de Scorpions (Arachnides). 1. La trichobothriotaxie en arachnologie. Sigles trichobothriaux et types de trichobothriotaxie chez les Scorpions. *Bulletin du Muséum national d'Histoire naturelle*, Paris 3e sér., n° 140, Zool. 104: 857-958.